THE MARINE RECORD

DEVOTED TO NAVIGATION, COMMERCE, ENGINEERING AND SCIENCE.

VOL. XI. NO. 11. CLEVELAND, O., MARCH 14, 1889. $2.00 PER ANNUM SINGLE COPIES 5 CENTS

Det. Bel'tele & Windsr Ferry

AROUND THE LAKES.

CLEVELAND, OHIO.

The schooner Porter has been purchased by N. S. Whipple of Detroit; consideration $28,000.

The schooner, John B. Merrill, has been sold to Connolly Brothers, Chicago; consideration $22,000.

The schooner H. G. Cleveland has been sold by A. Weiner & Co., to Avon parties. Consideration, $6000.

The ice at the Soo is 28 inches thick, that at Mud lake three feet thick, and at the straits of Mackinac 28 inches thick.

The new boiler shop recently opened by George Matthews, at 171 River street, has been doing a good amount of work since its inception.

The propeller Samuel Mather, Captain Richard Neville, is receiving three new pole lower masts, new forward house, and other improvements.

Ward & Jackson, shipsmiths, are busy as possible on iron work for the new vessels building at Quayle's yard, and at the Cleveland dry dock company's yard.

Mr. Bradley's towbarge, M. R. Warner, is in the Cleveland dry dock for re-fastening and calking. She is also receiving new bitts, and minor repairs on the hull.

Captain W. P. Henry, of the Lehigh Valley line, was in the city Tuesday, looking after the new tonnage building at the Globe Iron Works shipyard, for his company.

We take pleasure in recommending the Mount Olive Erasive Liquid, manufactured by Captain D. A. McLachlin, for cleaning varnish and painted articles, without injury to the polish. Price 40c per gallon. Address the Captain at No. 633 Trumbull avenue, Detroit, Mich.

The new boat building at the Cleveland shipbuilding company's yard, had her wheel shipped yesterday, and she will soon be ready to launch. Captain Lowe, who will command her is superintending the finishing work and attending closely to the details which have a practical bearing on the handling and working of a vessel.

The Cleveland elevator company have in hand, and completed, a number of contracts for Saginaw Mich. Among others one for E. Germain, Brown & Co., Linton Manufactering Co., Stenglin Manufacturing Co., all of which are for extensions and additions to their plant, showing a healthy and promising outlook for the future.

The Detroit & Cleveland steam navigation company intend starting the season on March 20. from Detroit. The time of leaving here will be altered to 9 30 p. m, instead of 9 p. m., standard time, and the change will prove beneficial all round. The comfort and safety of passengers are considered paramount, and the service is the best afloat. We wish the Detroit & Cleveland steam navigation company their usual full measure of success, during the entire season.

Captain Manson, of the schooner Erie Belle has arrived here from Toronto, to repair his vessel. It will be remembered that the Erie Belle went ashore off Ashtabula last October, and was towed into Cleveland, where she had bottom calked, and was laid up for the winter. We are pleased to note that the anxiety of mind consequent upon the loss and damage to his vessel has not robbed the captain of his hearty and genial manner. He is now hustling around having repairs made and expects to have the Erie Belle be in ship shape order for the opening of navigation.

Meteorological summary for the week ending March 12, 1889:

Mean barometer	29.89
Mean temperature	31.8
Mean humidity	70.6
Total precipitation	.08
Prevailing direction of wind	N. W.
Total wind movement, miles	1670
Average cloudiness	6.7
Average state of weather	Cl'dy
Max. temperature, (highest)	47.0
Min. temperature, (lowest)	23.5

W. H. HARMON, Sergeant Signal Corps.

The Haley bill to provide for the issuing of $25,000 bonds for the purpose of opening the old river bed channel into the outer harbor, has met with no opposition at Columbus. Its wisdom and propriety are too self-evident to permit anybody to stand in its way.

Captain Richard Cuson, Detroit, ship's husband for the Whitney fleet, is in the city calling on vessel men, Captain Cuson has been attending to the calking of the F. W. Wheeler, at Ashtabula, and leaves for Detroit to night.

DETROIT, MICH.

Special to the Marine Record.

J. C Goss is having lots of work done in his sail making, rigging, flags and awning departments, all running full capacity, with his usual share of fitouts for new vessels building at this and other ports.

Captain Alex Ruelle's tug Carrington, has received a new boiler 7 feet 2 inches diameter, 12 feet 6 inches long, built by the Detroit dry dock boiler works.

Captain G. E. Mapes has been giving his schooner, Smith and Post, a new stern and other repairs, and re-fastening and re-calking all over, at a cost of about $1000.

Teuton, McWilliams & Co., and John Francombe entered into a contract with F. W. Wheeler, West Bay City, for him to build for them a schooner 185 feet keel, 35 feet beam, 13 feet hold. She will be consort to the steam barge R. W. Stafford.

The steamer F. R Buell, has received a new high pressure engine 29 by 36, this winter, built by S. F. Hodge & Co.

The steamer F. R. Buell, Captain D. Millen, and consort Ellmore. Captain C. Tucker, are chartered for 75,000 bushels of corn for Kingston, at 3½ cents, free of canal tolls. The Elllnore loaded 29,000 bushels at the Union elevator last week, and the Buell went to the same elevator last Thursday to load 46,000 bushels.

J. & T. Hurley are rebuilding the schooner Mystic Star.

The schooner Groton is being rebuilt by Captain John Christie.

Captain Frank Welcome and wife, are here from Buffalo, visiting Captain J. W. Millen.

The steamer Minneapolis, was in one of the Detroit dry dock company's docks last week for a general overhauling and repairs.

The barge Iron State, having undergone a rebuild at Springwells, is now at the Detroit dry dock company's upper yard, where she will receive new masts.

The steamer B. W. Blanchard, was in dry dock at Springwells. receiving steel arches, and re fastening and re-calking all over.

The steamer Raleigh is expected here from Cleveland iu a few days, for the purpose of going into dry dock for a general overhauling.

T. W. Noble, sailmaker, is busy making new sails and repairing sails belonging to the sixteen vessel fitouts stored in his loft. He expects to be very full of work as the time jogs along for the opening of navigation.

The Detroit and Cleveland navigation company's splendid steamer, City of Clevelad, is ready for the coming season's business, and will probably leave here on her first trip on the 20th of March.

Captain George Lindsay, last season in the Toledo, will take command of the new Percheron steam navigation company's boat, Thomas W. Palmer.

Samuel F. Hodge & Co's winter's work follows: Triple expansion engine for F. W. Wheeler, 20, 32 and 54 by 42 stroke, with two, 11 by 12 feet Scotch boilers for 150 pounds steam. Two triple expansion engines for Detroit dry dock company, 20, 32 and 54, by 42, with two 12 by 11 feet Scotch boilers for 160 pounds steam for each boiler. Triple expansion engine for Craig ship building company, 19, 30 and 50 by 40 stroke, with two 11 by 12 feet Scotch boilers for 150 pounds steam. Fore and aft compound engine for Simon Langell and Sons, of St. Clair, 26 and 48 by 40 stroke, with one 12 by 16 feet fire box boiler, for 120 pounds steam. Fore and aft compound engine for Milwaukee ship yard company, 24 and 44 by 42 with two 8½ by 14 feet fiire box boilers for 120 pounds steam. Fore and aft compound engine for Riebold: Walters & Co., Sheboygan, Wis,. 24 and 44 by 42, with two 8 by 14 feet fire box boilers, for 110 pounds steam. Fore and aft compound engine for T. W. Kirby of Grand Haven, 19 and 36 by 30 with one 10½ by 15 feet fiire box boiler for 110 pounds steam. Fore and aft compound engine for Ira H. Owen, of Chicago. 16 and 30 by 28 with one 8½ by 13 feet fiire box boiler for 125 pounds steam. One marine engine for propeller F. R. Buell with cylinder 29 by 36 stroke. Fore and aft compound engine for Fletcher & Gilchrist, of Alpena, 26 and 48 by 42 with two 8½ by 14 feet fiire box boilers for 125 bounds steam. Steeple compounding propeller H. S. Pickand, s and furnishing new fire box boiler 9 by 15 for 110 pounds steam.

Last August the steamer Kittie M. Forbes, towing the schooner Mabel Wilson down past Marine City, got her tow line across a raft, also bound down, and caused the Wilson to collide with the raft. An hour later, opposite Harsen's Island, the Forbes did the same thing, and on this occasion the raft was broken in two. The Mackinac lumber company, to which it belonged, libeled both steamer and schooner, claiming $6,000 loss for 4,000 telegraph poles, and for expense in reconstructing the raft. Judge Brown, on Friday, decided in favor of the lumber company and referred the matter to commissioner Davison to assess damages.

Mr. C. L. Barron, chief engineer of the passenger steamer City of Milwaukee, has left this city to rejoin his vessel at Grand Haven. This makes the third season for Mr. Barron on the City of Milwaukee.

Captain Grummond's steamers Flora and Atlantic will run as usual the coming season from Cleveland, Toledo and Detrost, stopping at Marine City, St. Clair, Port Huron, Lexington, Forrester, Forrestville, White Rock, Sand Beach, Port Hope, Oscoda, Ausable, Harrisonville, Alcona, Black River, Alpena, Crawford's Quarry, Roger's City, Cheboygan, Duncan City, Mackinac and St. Ignace. Freight and paesengers carried at as low rate as by any other line. Please order your freight spipped by Grummond's Mackinac Line.

The new steel side wheel steamer, City of Detroit, recently built at Wyandotte, is at the Detroit dry dock company's upper ship yard receiving her finishing touches, and will be completed by the first week in April. She is 297 feet over all (14 feet longer than her sister steamer City of Cleveland). 42 feet beam, 72 feet over guards. Her two compound beam engines, by Fletcher & Co., are high pressure, 44 inches diameter of cylinder, 8 feet stroke; low pressure, 68 inches diameter of cylinder, 12 feet stroke, and four Scotch type boilers, by the Lake Erie Boiler Works, Buffalo, are 12x11 feet 6 in. each and allowed 110 pounds steam. She has the American Ship Windlass company's steam capstan and windlass forward, and steam capstan aft. A three decker and has 138 state rooms. Her feathering paddle wheels are 26 feet in diameter. Her cabins and state rooms are being fitted out in mahogany, and the panels in the main saloon will be filled in with embossed leather; the roof of the main cabin will be filled in with lincrustawalton. She will have mahogany furniture upholstered with variegated uncut plush, carpets of best Wilton the color of the upholstery, carpets will be old gold, blue and olive, which will have a splendid appearance under the electric lights, four hundred and thirty of which have been placed on board by the Brush company to light up this splendid floating palace. She is owned by the Detroit and Cleveland Steam Navigation Co., and will, when completed, have cost them $350,000 and will be the finest side wheel steamer on fresh water.

There is building at the Detroit dry dock company's upper yard, for Eddy Brothers, Saginaw, a steamship 279 feet and 9 inches keel, 299 feet over all, 41 feet and 10 inches beam, 23 feet moulded depth. She will have a triple expansion engine 20, 32, 54 by 42, built by S. F. Hodge & Co., two Scotch type boilers, 12 by 11 each, allowed 160 pounds of steam, built by the Lake Erie Boiler Works, Buffalo; the American Ship Windlass company's steam capstans and windlass, and Williamson Brothers' steam steerer. She will be launched next month. A steambarge for the Sulphite Fibre Company 195 feet keel, 212 feet over all, 37 feet beam, 15 feet 3 inches hold. She will have a compound engine 22 and 42 by 36 and boiler 10 fee 6 inches by 11 feet 6 inches, to be allowed 120 pounds steam; the engine and boiler building by the Detroit dry dock company's engine and boiler works. At the company's yard at Springwells, a steam ship is being built for R. P. Fitzgerald & Co., Milwaukee. She is 262 feet 4 inches keel, 280 feet over all, 40 feet beam, 23 feet hold. She will have a compound engine 28 and 52 by 40, by the Detroit dry dock engine works, and 1 marine boilers 9 feet 6 inches diameter, 14 feet long each, by the Detroit dry dock boiler works, and the American ship windlass company's steam capstans and windlass. She will be launched in about three weeks.

James Purvis, last season on the Oregon, will this season take charge of the new boats building at the Detroit dry dock company's yard at this city for the Sulphite Fibre company.

John B. Purvis, president of the M. E. B. A. No. 3, of Detroit, will leave here on or about the 18th to take charge of the machinery on the steel steamer Corsica. J. R. McGrath will act as his first assistant.

At the company's yard at Wyandotte, the composite steamship T. W. Palmer is being fitted out and will shortly come up to Detroit to make room for the new composite steamship to be called the Manchester, which the company are building for the Inter-Ocean steamship company. Her dimensions are 280 feet keel, 299 feet over all, 42 feet beam, 22 feet 6 inches hold. She will have a triple expansion engine 20, 32, 54 by 42, by S. Hodge and Co., and two boilers of Scotch type, 11 feet 6 inches by 12 feet each, by the Lake Erie boiler works, Buffalo. The American Ship Windlass Co's steam windlass and capstans, and the Williamson Bros' steam steerer. She is to be launched in about two weeks. They are also building for the owners of the T. W. Palmer, a sister ship to the latter, and of the same dimensions, but constructed of steel and wood, instead of iron and wood. She will have a triple expansion engine 20½, 33, 55 by 42, by the Frontier Iron works, and boilers 11 feet 6 inches by 12, by the Lake Erie boiler works. Also a steel steamship for the Cadillac Transportation Co., of the same dimensions of hull as the Manchester, with triple expansion engine 21, 33, 56 by 42, by the Detroit engine and boiler works, 12 feet 6 inches by 11 feet.

WILLIAMS.

CHICAGO, ILL.

Daniel Rice, engineer of the fireboat Chicago, lying in Sampson's bridge on the south branch of the Chicago river, saw a dark object floating on the water near Main street bridge. It was fished out and found to be the body of a woman, about forty five years of age, five feet and two inches tall and weighing one hundred and thirty pounds.

The splendid side wheel steamer City of St. Joseph which will arrive here in May next in command of Captain Duncan McLachlan, is being fitted up in first class shape. She is of the composite type and is one of the best sea boats the Detroit & Cleveland Steam Navigation Co. own, and that is saying a great deal, as they are the owners of several splendid steamers. During the winter she has been in dry dock and the Georgia pine with which her bottom and sides were formerly planked was removed and replaced with five-inch oak plank, which makes her stronger than she was when new. Her dining room, kitchen, pantry and help quarters have been placed below the main deck, similar to the modern style of the balance of the company's fleet. She is having an electric light plant placed in her which will furnish light throughout the entire steamer. She is being entirely refurnished and refitted and when ready to go on her route will be second to none of the company's fleet. She will make daily trips between Chicago and Saint Joseph, and during the months of July and August two round trips daily. She will run from the L. M. & L. S. Transportation company's dock at Rush street. The D. & C. N. Co.'s new wharf and warehouse at Saint Joseph is nearly completed and the Chicago & West Michigan railroad Co. have promised to have the new bridge at the mouth of the river at Saint Joseph completed by May 1st, the old bridge not being of sufficient width to admit the passage of this fine steamer. Fifteen hundred persons can ride on her without any discomfort, and as a fine hotel will be built at Saint Joseph for their accommodation, no doubt a vast number of our citizens will be glad to avail themselves of this splendid opportunity to recuperate their health and spirits.

WILLIAMS.

TOLEDO, OHIO

Special to the Marine Record.

The M. I. Wilcox Cordage and Supply company are busy in their sail loft making new sails under the management of Harry W. Greene.

Gilmore, shipbuilder at Ironville, is doing extensive repairs to the propeller Oscar Townsend, in his dry dock, the cost of which will amount to about $12,000. The steamer Monohansett will go in dry dock for general repairs as soon as the Townsend goes out, and several other vessels, scows, and dredges will follow. Gilmore is also building a large dredge 75 feet long, 22 feet wide, 8 feet deep, and is doing considerable work to the barge Fred Kelly.

Toby & Dailey, ship chandlers, are devoting themselves almost wholly to the requirements of vessel business. They have had the steam launch, Parkman, entirely rebuilt in their large store house, and lengthened her 16 feet; she is now 48 feet and 6 inches over all, 9 feet and 6 incher beam, 3 feet 6 inches draft, and will be used in connection with their business and for the benefit of their patrons.

E. G. Ashley, the vessel supply man, has purchased a steam launch 35 feet over all, 6 feet 6 inches beam, and 5 feet depth of hold, for use in his business of delivering supplies to vessels. Captain Charles Tiedtkee will have command of her, and John Beigh chief engineer. E. G. Ashley now owns the whole of the schooner Brooklyn, having this winter purchased Captain Kelly's interest.

The barges William Case and H. C. Sprague have received new deck beams, decks, hatches, plank shear, stanchions, new windlass, cabin, masts and recaulking.

The schooner, John Schutte, received a new mizzen mast, some new rail and general repairs; the schooner St. Peter a new mizzen mast; the schooner W. H. Rounds new plank shear, stanchions, rail and other repairs; the schooner Halloran, considerable repairs.

It is reportedin marine circles that the sister steamship to the George G. Hadley, now building by J. Davidson at West Bay City, will be named the George H. Ketchum and it is probable that she will be owned by the same parties as the Hadley.

Mr. Bowe is building, for the Maumee River Steamboat company, a side wheel steamer after the style of the Mississippi river steamers. She is 165 feet over all, 28 feet beam, 50 feet outside of guards, 5 feet depth of hold and to draw 2 feet of water. Her two engines have 17 inch cylinders by 6 feet stroke, and two boilers, Scotch type, 6½ by 10 feet; she will be elegantly fitted out and will have electric lights. She will be used as an excursion steamer on the Maumee river and will carry about a thousand passengers.

WILLIAMS.

SANDUSKY, OHIO.

Captain J. C. Estes has appointed Captain Lewis Stone to his steamer Ohio.

ad Detroit

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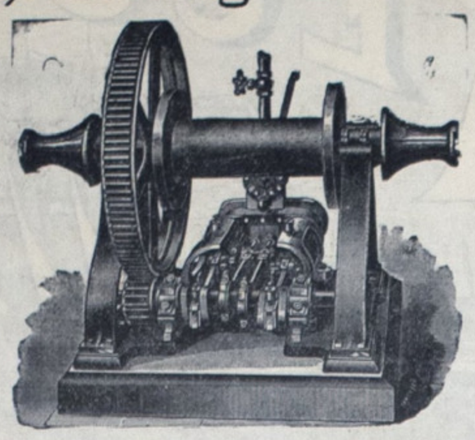

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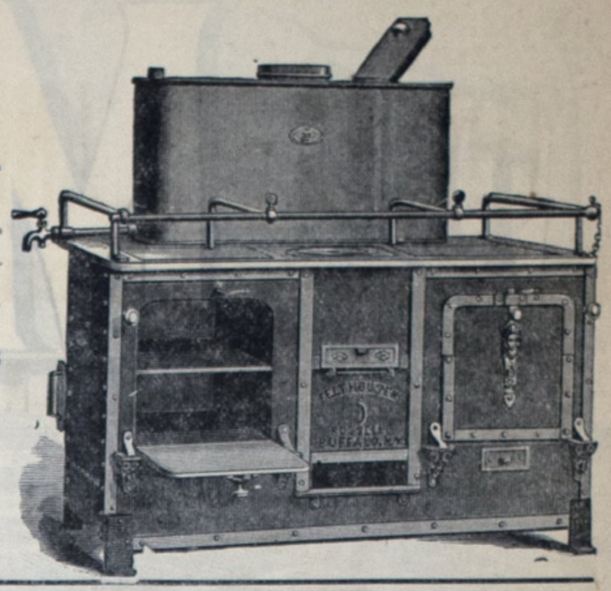

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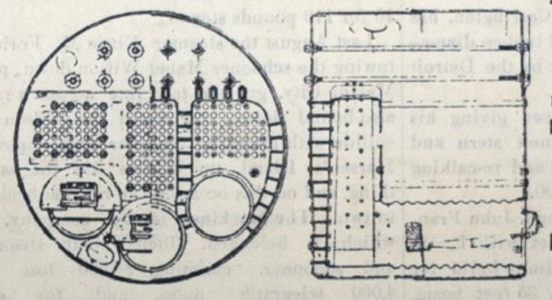

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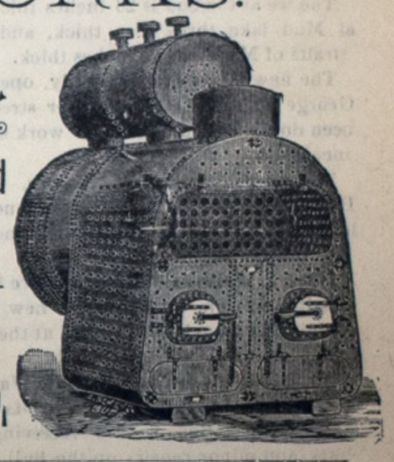

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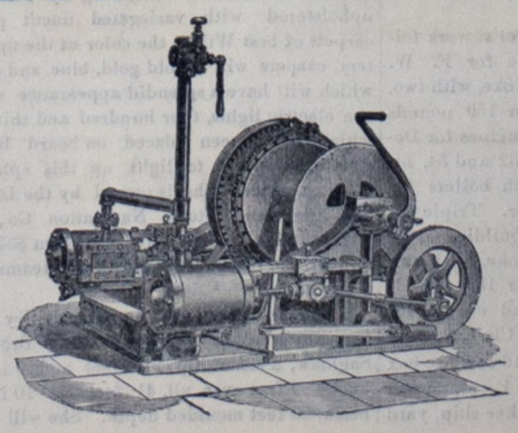

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MARITIME LAW.

CARRIER OF PASSENGERS—DEVIATION—BREACH OF CONTRACT—DAMAGES.

U. S. District Court, Southern Disirict of New York.

The libellant purchases a passage ticket from New York to Bordeaux, which expressly stated that the passage was to be direct; and the prospectuses of the steamship company stated the same thing. After the sale of the ticket, and without notice to libellant, the steamship went to Santander to deliver cargo, thereby lengthening libellant's voyage by six days. Libellant proved no special damage arising from the deviation. Held, on suit brought to recover damages for libellant's delay, that the deviation was a breach of contract, entitling the libellant to receive the amount of his passage money.

BROWN, J.

The libellant, a gentleman of 70 years of age, with his wife and two children between 4 and 12 years old, purchased from the claimants on the 12th of April, 1886, a ticket for himself and family for a passage from New York to Bordeaux on board the steamer Chateau Margaux. The ticket expressly stated that the voyage was to be direct; and the prospectuses of the company stated the same thing, emphasizing the shortness and directness of their route, as inducements for invalids to travel by their line. The vessel sailed on the 24th of April A few days before she took a quantity of cargo to deliver at Santander; and though notice of this fact was published in a maritime newspaper, the intended deviation was not made known to the libellant, though the company had his address, and he did not learn that the vessel was to go to Santander until a few days out. The steamer would naturally have arrived at Bordeaux a little sooner, if anything, than at Santander. She remained three days at the latter place, and was three days more in proceeding from Santander to Bordeaux. The libellant claims $2,000 special damages for the detention and the annoyances arising from it. He had written to a gentleman at Turin to meet him at Paris on the 6th of May on business, who attended at the time, and after waiting, departed before the steamer reached Bordeaux, which was on the 12th of May.

There is no sufficient proof of special damage. The appointment was not kept, but no pecuniary loss thereby is proved. The deviation was, however, a breach of contract, and the libellant is entitled to reasonable compensation for the loss of time, and the inconvenience and annoyance directly and naturally arising from the violatiou of the contract. When it was determined to send the vessel to Santander, there was plenty of time to apprise the libellant of the fact, and he would have been entitled to a return of his passage money had he chosen to demand it. At Santander, the master, by authority of the owners at Bordeaux, offered transportation to the libellant and his family by rail, or by one of the transatlantic steamers, which was to leave Santander the day after the libellant's arrival there, which would have saved two or three days of the delay. The libellant preferred to remain on board his vessel rather than suffer the inconvenience incident to such a change; and he did not telegraph or write to the person whom he expected to meet at Paris. The comfort and even the pleasures of the libellant and of his family were ministered to with marked consideration by the master of the vessel while at Santander; and the proof does not show any actual pecuniary damage. But the defendants had no right, contrary to their contract, to take the libellant upou a route to which he never assented. I therefore allow as damages the amount of the passage money paid, viz. $200, with interest, for which a decree may be taken with costs.

December, 18, 1888.

BAD OUTLOOK FOR THE NAVY.

Those who feel most deeply the need of an increase of the naval power of the country will most regret the change in the conduct of the Navy Department from the keen intelligence, rare executive capacity, and untiring energy of Secretary Whitney to the droning incapacity of Secretary Tracy.

General Tracy might perhaps well have filled the Attorney-Generalship, which was the post he desired, but the humiliating exhibition he made of utter lack of nerve, and executive ability as temporary presiding officer of last fall's Republican convention at Saratoga, was evidence enough that he is entirely wanting in the snap, and drive, and decision which are imperatively needed in the creation of the new navy. It is, we think, quite within the limits to say that General (militia general) Tracy has no knowledge of and no interest in the Navy, no acquaintance with modern methods of naval construction, and no knowledge of the naval armaments of other countries.

He goes into the Cabinet as the agent of Thomas C. Platt, chief patronage monger, and he takes the Navy, despite his unfitness for it, because it is the only place President Harrison will give him. This is not the way to create a great navy. It cannot be done by peddling navy-yard patronage to carry Mayoralty elections in Brooklyn and to pave Mr. Platt's way to the Senate. It is unfortunate for the country that it cannot have the services of Secretary Whitney for four years more. And since that is impossible under our present political system, which makes the party greater than the country, it is unfortunate that he is not to be succeeded by some man of vigor and capacity like unto his own. —*Buffalo Courier.*

LLOYD'S RULES FOR STEEL SHIPS.

It was in 1855 that Lloyds first issued rules for iron ship building, and in 1867 steel ships were first classed. The new rules just issued form a quarto volume of some 200 pages, with many tables for both iron and steel. The specification for iron is that it must be of a good malleable quality, capable of withstanding a tensile strain of 44,800 pounds per square inch with the grain and 40,320 pounds across the grain. Strips of steel cut crosswise or lengthwise of the plate are to have an utimate tensile strength of not less than 62,720 pounds, with an elongation of at least 16 per cent on a length of 8 inches before fracture. Strips are also to be heated to a low cherry red, and cooled in water of 82 degrees F., and then must stand bending double aronnd a curve of which the diameter is not more than three times the thickness of plates tested. As to the relative sizes allowed, it may be stated generally that where the thickness of iron plates is defined in sixteenths of an inch, the thickness of steel plates is defined in twentieths of an inch; that is when iron is 7-16 of an inch steel may be 7-20 of an inch thick.—*Western Machinist.*

The recent fire on the steamer Colorado at Port Huron destroyed her upper works forward. The loss, which is now estimated at $4,000 instead of $10,000 as first reported, is covered by insurance.

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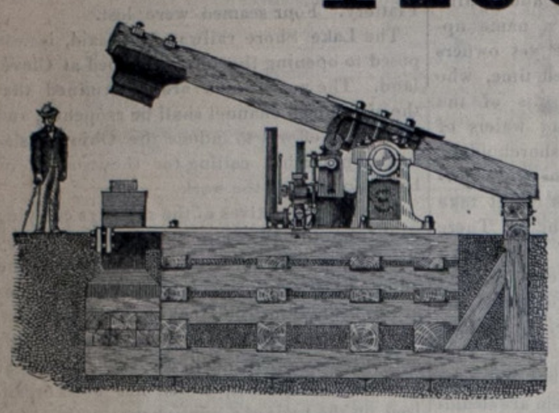

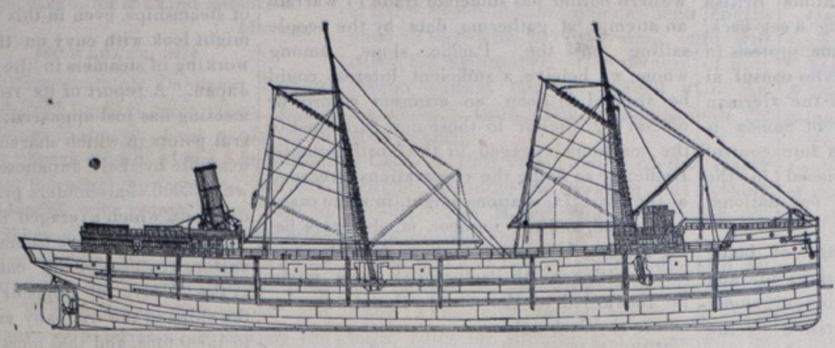

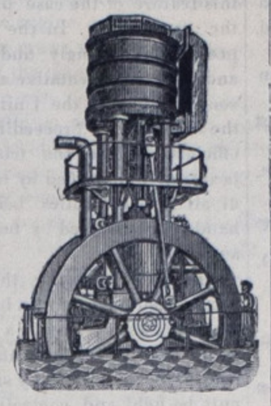

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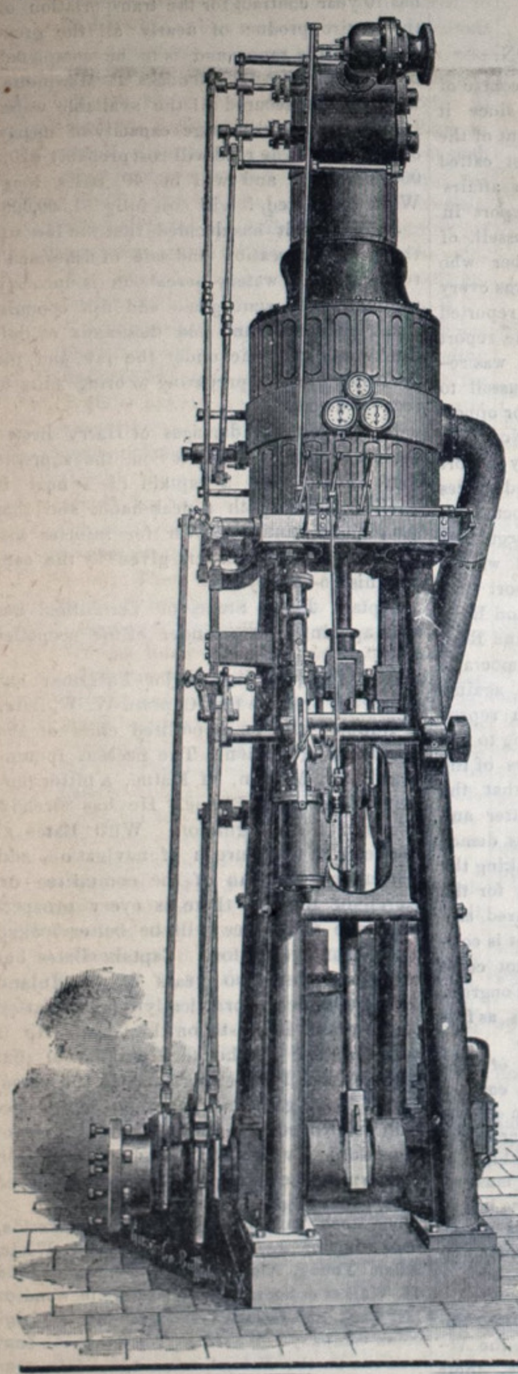

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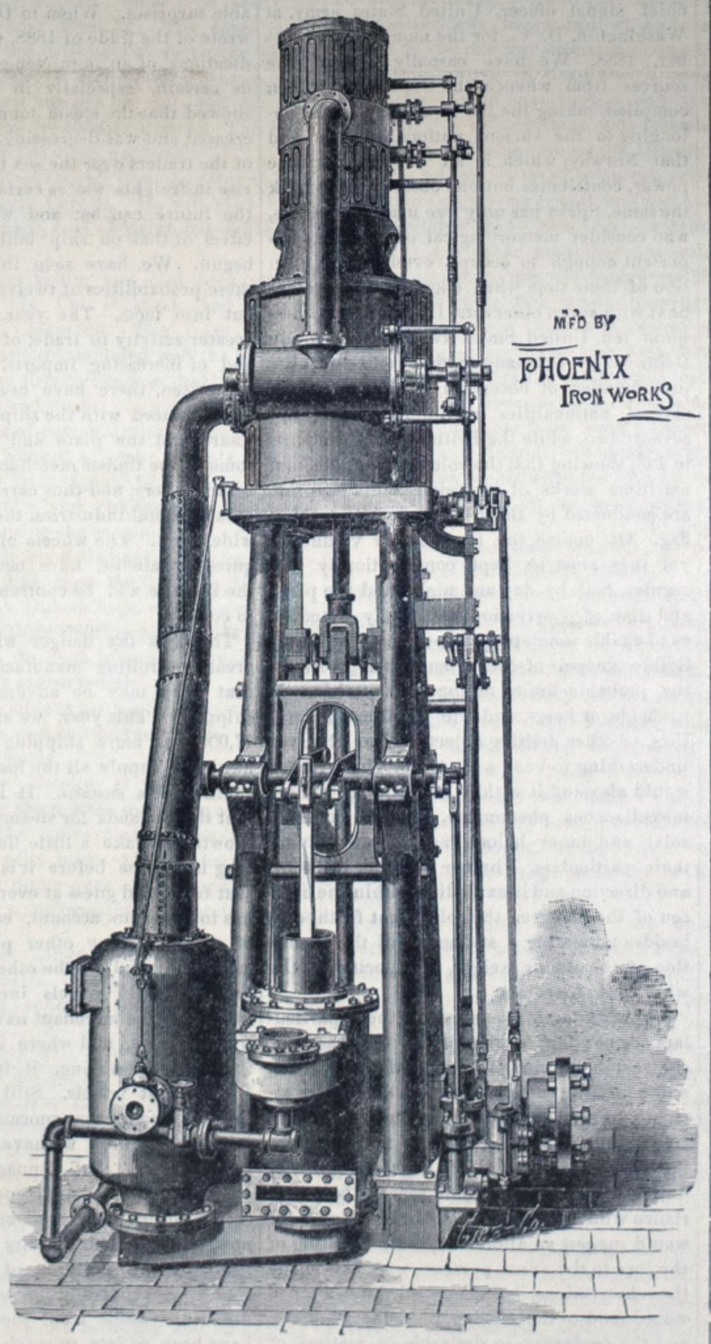

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Marine Record.

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MARINE RECORD—OFFICIAL PAPER.

SAMOAN AFFAIRS.

The recent report perpetrated by sensationalists, detailing the complete annihilation of the United States war ship Nipsic and her crew, now seems to be entirely without foundation. The rumor emanating from German sources has been sown broadcast over the entire country, and has caused considerable excitement and discussion in marine circles, and among citizens generally. The navy department has not heard a syllable of the much talked of torpedo explosion, and an affair so momentous would, in all probability, have found its way officially or otherwise to Washington before this. Notwithstanding the evident falsity of the report, attention is closely directed to the position we occupy at Somoa, in the event of hostilities breaking out before the meeting of the triant conference. In any case the United States should be in readiness to maintain her rights and uphold the honor and dignity of the nation, pending the decision of the conference. The navy department has recently received advices stating that four German ironclads have been dispatched from Genoa, Italy, with orders to proceed on to Samoa, and this movement ought to be considered as suggestive of the ultimate intention of Germany. Evidently she does not intend to be caught napping, or unprepared to assert her usurped authority over Samoan affairs. The act of centralizing a large naval force there would seem a menace to the pacific intentions of at least the two other nations interested, and must seriously affect the deliberations of the conference pending, while the United States government should be in a position to protest against Germany making a naval arsenal of the territory, and assuming, as far as possible, a direct protectorate over the interests involved.

Should the efforts of the conference result in any other way than a clear and peacable understanding, the United States navy would be obliged to bestir itself to equalize the vantage gained by the German addition to the Pacific squadron, and to give adequate protection to the cities, and commerce of the Pacific slope; hence the present undue excitement in the large seaport of San Francisco, is not entirely mythical, or uncalled for. While the general impression is that the German attitude towards the Unithd States and England ought to be at least quiescent, if not apologetic, the opposite is apparently the case and the aggressive spirit of defiance and defence is predominant in the actions of the German government. Even the ultimate method of maintaining peace by a disinterested national arbitration convention, would seem to be ignored, and from the present outlook, Germany appears determined to assert her supremacy in the future, in tone with her arbritrary treatment of Samoan affairs in the past From the English press we gather that the United States have the moral support of that country in the dispute as it now stands, yet there is no dependence to be placed on this feature of the case until the meeting of the convention. In the meantime British prestige is seemingly undergoing a set back, and their representative at Samoa, protests in conjunction with the United States consul at the high-handed proceedings of the German officials While the triarchy of Samoa is beautifully simplified by the absolute control of all responsibilities being placed in the hands, or assumed by but the one national authority.

Under this showing the adage of being forewarned ought not to be lost sight of, and while possession may be a forcible argument in the event of unpleasantness arising in the future, the island or any similar territory can only be held, and controlled by the nation exercising a naval supremacy, and by a power that is capable of asserting her importance on sea, independent of what her resources may be on land. While there may have been some trifling interchange of courtesies between the German corvette Olga and the United States warship Nipsic, we do not hesitate in saying that the torpedo story is a most improbable one. The commander of the Olga not having authority to proclaim war would have exceeded his duty by sending a torpedo against the Nipsic in open violation of law or discipline. On the other hand, the engagement could not possibly have occurred and the news reached all other sources but the state or navy department. However, in view of such rumors gaining credence, in the future it would only be a matter of prudence for the United States government to have a fast steamer to act as a dispatch boat, tender, or transport, during the unsettled period previous to the convention.

WEATHER REVIEW.

In looking over the international meteorological report, issued from the office of the chief signal officer, United States army, at Washington, D. C., for the month of December, 1888. We have casually noticed the sources from whence the reports have been compiled, taking the list of steam vessels belonging to the various nationalities, we find that Norway, which is an ancient maritime power, contributes but one observer, Denmark the same, Spain has only two master mariners, who consider meteorological observations important enough to occupy even a small portion of their time when afloat, France comes next with seven observers, Holland eight, Belgium ten, United States twenty-one, closely followed by Germany with twenty-two; the total number of observers from among the several nationalities mentioned above are seventy-two, while the British alone amounts to 143, showing that the volume of intellectual maritime works of precision and discipline are conducted by the commanders under that flag. Of course, the reports are voluntary, yet they must be kept conscientiously and regular, both by day and night, and the place and time of observation accurately noted, so as to enable the department to form an intelligible synopsis of the barometric depressions, the probable limits of fog belts, position of ice fields, or bergs, and the location of derelicts, or other drifting objects. The observer undertaking to keep a meteorological record would also find it within his province to note miscellaneous phenomena, such as auroras, solar and lunar halos, and meteors, giving their particulars, whether small or brilliant, and direction, and if exploding within the horizon of the observer, the colors sent forth, etc., besides tabulating a statement of the formation of the clouds, weight, or velocity of the wind, and other data.

On the Atlantic line steamers these particulars are not kept or filled in by the master of the vessel, but usually by one of the officers, and while the captain receives the credit attached to the keeping of a minute and scientific statement, another person actually does the work in addition to his regular routine of duties. This system would seem to be at variance with correctness and harmony, and we would suggest an alteration in the crediting of the logs to the exact persons who had made the observations, believing that the method would tend to the efficiency of the observer, and the perfection so desirable in matters of meterology. The late Lieutenant Maury accomplished a better result from his detailed system of reading and tabulating the figures kept by others, than was ever expected, even by the most interested persons, and his track charts, and wind and current charts, compiled from those sources, are held in the highest repute among mariners today; yet, notwithstanding the above facts, there is a large field open to research and observation in the waters of the globe; and another Maury would find an interesting study in detailing the characteristics of the North Pacific, with the assurance that the future generations will succeed in opening up as large a trade there as the Atlantic possesses at the present. When American vessels will furnish the Russian and Chinese empires with the product and manufactures of the United States, bringing in return valuable cargoes of the productions of those countries, we may expect to have the showing of marine scientific observers preponderating and essentially American, and if our attention is centered in this direction at an early date, we will be all the more qualified to create and hold the balance of trade and industry, which, of a certainty, must sooner or later eventuate across the Pacific. Already our western border has sufficient trade to warrant an attempt at gathering data by the people sailing on the Pacific slope, among whom, we beleive, a sufficient interest could be aroused to keep an accurate record or official log similar to those now furnished to the mariners engaged in the North Atlantic traffic; by so doing the observations recorded at the coast line stations might, in some cases, be verified, and the number of observers being increased data sufficient to furnish commerce with a North Pacific pilot chart might be forwarded to the chief signal service officer at Washington.

While believing that our extensive western boundary will soon become as important to the commerce of the United States as the eastern seaboard has been in the past, we would be pleased to see the importance of the meteorological weather forecasts and reports, fully acknowledged by the navigators of the North Pacific, and in addition to the particulars contained in the daily journal kept on shipboard, we believe that it would be to the interests of the maritime community if an accurate meteorlogical log book, as furnished by the department, was kept by the navigating officers of the vessel and forwarded at the earliest possible opportunity to the nearest signal service station. Considerable traffic is continually on the move between Tatoosh Island and the ports of Southern California, yet, it is questionable, whether there is even one accurate observer in the trade who forwards on to Washington the important phenomena, which he is in such an excellent position to observe both by day and by night.

THE SHIPPING OUTLOOK.

The trade outlook for 1889 is one which presents marked changes to that of a year ago, and which will probably have very considerable surprises. When in December, 1887, we wrote of the trade of 1888, we pointed out indications of an improvement that seemed to us certain, especially in shipping, and we showed that the steam tonnage had then decreased and was decreasing, while the needs of the traders over the sea increased, so that a rise in freights was as certain as anything in the future can be; and we added that the effect of that on ship building had already begun. We have seen in the present year these probabilities of twelve months ago, bulk out into facts. The year has been one of greater activity in trade, of enlarging exports, and of increasing imports. As the freights have risen, there have been more and more orders placed with the shipbuilders, and necessarsly at the plate and angle mills, with some of the timber merchants, with chain and cable makers; and thus carried through to the great mineral industries, the impulse has been widely felt. The wheels of trades that were quiescent almost, have been set going, and the impulse will be continued for some time to come.

There is the danger which affects these great controlling manufactures, and that is that they may be adversely controlled by shipping. This year, we are building about 17,000 tons more shipping monthly than is needed to supply all the losses that the mercantile fleets sustain. It is to be supposed that the demands for steamers grow, and that growth will take a little time to meet. How long it will be before it is met is a question that few could guess at even. It is one which has to take into account, especially, harvests of corn and many other productions, on the one hand; and on the other, the fact that we have to build vessels increasingly for the world; for the merchant navies of other countries decrease, and where in other countries they are increasing, it is largely through British built vessels. Still the world cannot forever take up that enormous addition to the tonnage of which we have spoken, the more especially as that tonnage is increasingly efficient. There must come a time when our shipbuilding yards will be less active than now, or when their activity will have to show itself by the building of tonnage for new trades, and possibly for trades that require different vessels from the large ones which have been, of late, so much built at the chief centers.

The navigation year will open with a good demand for tonnage—that seems certain. Indeed, it would not be surprising to find that very high rates rule occasionally in many trades. What the later part of the year may bring remains to be seen, it will be governed largely by harvests as to which no opinion can be prudently offered yet. But the rush of capital into shipping will at some time exhaust itself—after it has laid the foundation for another dull period in its own trades, and in the constructional industries. There are many events which might prolong the period of briskness in shipping: bad harvests in Europe, hostilities, and other evils feed the the fleets; and there is that growth of trade and the opening out of new branches which is ever in progress. Some ship owners believe that activity in shipping, with brisk demands and high freights, will continue over another year; others prolong the period over two years; but time only will declare where the truth is.—*Newcastle Chronicle.*

SHIPPING IN JAPAN.

The "Nippon Yusen Kaisha" is the Japanese Mail Steamship Company, and whilst with Milton we might say, "what a name upon a title-page is this," there are yet owners of steamships, even in this favored time, who might look with envy on the results of the working of steamers in the distant waters of Japan. A report of its recent shareholders' meeting has just appeared; and there are several points in which shareholders might take example by their Japanese brethern. There were 3,000 shareholders present; there was a dividend which averaged 12 per cent for the year; and there were liberal additions to the various reserves of the company. A glance at the "Universal Register" shows us that the ships of the company vary from 250 tons to 1,500 tons, and that most of them are steamers. In that register between 60 and 70 vessels are credited to the great Japanese fleet, so that it certainly owns about a third of the total tonnage of Japanese ships (as distinct from small boats and yachts). The company receives from its government a small subsidy for carrying mails, one-fifth of its total income is from passengers, and the great bulk of its receipts is from goods carried. In the report we have referred to it is said that last year the company paid off all its debentures, reduced its working expenses from 59 per cent to 57 per cent, and increased its dividend. These are the chief facts in the report, and they show that shipowning is becoming more prosperous in the far East; that there is greater scope for steamers there—of a small size, comparatively, and for use to some extent in the coasting and allied trades; and also that a large number of persons seem to have become shipowners in that country. Whether there is not a hint to our shipowners also, is another matter; but at least it is certain that in the enlargement of the area of the ownership the great Japanese company is doing much to popularise shipowning, and probably something also to bring cargo and passengers to its ships.

THE PANAMA RESOLUTION.

WASHINGTON, February 23.—The course of the Edmunds Panama resolution since it passed the senate, has been little out of the ordinary run of business. When first called up in the house committee on foreign affairs a sub-committee made a unanimous report in favor of its passage, and, as Mr. Russell, of Massachusetts, was the only member who openly opposed the measure, there was every indication that it would be speedily reported and passed by the house. A favorable report was made in fact, but the resolution was recommitted in order to allow Mr. Russell to explain more in detail his reasons for opposing it. Then it transpired that Mr. Norwood, of Georgia, wished to make a minority report against the resolution, and he joined forces with Mr. Russell in preparing the document. It was a very long and exhaustive argument upon the subject, and the treatment wss so able, that when completed the report was signed by Messrs. Hooker, Cochran and Raynor, in addition to Messrs. Norwood and Russell. Here were five of the seven democratic members of the committee arrayed against chairman McCreary's report, which represented the views of the majority' owing to the adherence of the republican members of the committee. It is now understood that the chairman is reluctant to press the matter and widen the gap between himself and his democratic colleagues on the committee, taking the ground that the immediate necessity for the passage of the resolution has disappeared, as a result of recent events in France, so it is conjectured, and that the matter will not come again before the house during this Congress.

The resolution mentioned above is as follows:

RESOLVED, That the government of the United States will look with serious concern and disapproval upon any connection of any European government with the construction or control of any ship canal across the Isthmus of Darien or across Central America; and must regard any such connection or control as injurious to the just rights and interests of the United States and as a menace to their welfare.

THE New York Belting and Packing compaey, N. Y, have recently appointed the Atlanta Rubber company, Atlanta, Ga., their south-eastern representative. This firm are well known throughout that section of the country, and have acquired an enviable reputation for square dealing, eareful and prompt attention to orders and business courtesy. They will carry a very large stock and complete assortment of the New York Belting and Packing company's vulcanized rubber goods.

THE LOG BOOK.

In length the City of Rome comes next to the Great Eastern, 560 feet; in tonnage among steamships, the City of New York, 8,500 tons; among men-of-war, the Italian Italia, 13,000 tons. The Great Eastern had a tonnage of 12,000 tons. Her greatness consisted in her length, 692 feet, and her breadth, 83 feet.

Steamboat travel on Puget Sound and the Columbia river, has been suspended on account of the reduction in wages of ten per cent, of all employees who had been receiving $60 and upward per month.

The British bark Port Gordon, with a general cargo from Liverpool for Puget Sound, was wrecked last week forty miles from Cape Flattery. Four seamen were lost.

The Lake Shore railway, it is said, is opposed to opening the old river bed at Cleveland. The vessel men are determined that the abandoned channel shall be reopened, and will make efforts to induce the Ohio legislature to pass a bill calling for the issuance of bonds for during the work.

The representatives of the railways carrying coal from the Pittsburg and Hocking Valley districts to lake ports met at Cleveland and adopted last season's freight rates. The rates are 85 cents from the Hocking Valley district, and 90 cents from the Pittsburg district. This action leaves open work for the Lake Coal Dealers' Association, which has been organized on the basis of a continuance of last season's conditions.

Is is reported that the steamer Lake Ontario, which burned and sunk at Charlotte last fall, has been raised, and she will be repaired and Americanized.

Plans were adopted for a new steamship line to ply between Philadelphia and Liverpool and Antwerp. For six months a syndicate has been negotiating for the purchase of wharf frontage on the Delaware river, and has finally secured property at the foot of Mifflin street.

The Lehigh Valley Coal company has secured contracts for 40,000 tons of coal to be used by Minneapolis millers this year, in making steam power to be used in the manufacture of flour. The company expects to secure contracts for almost as much more coal from the millers. The coal can hardly be laid down in Minneapolis short of $5 per ton.

John F. Stevens has begun the survey of a new road from Marquette to the iron mines, connecting at Champion with the Milwaukee & Northern. Chicago capital is behind the road, which will probably be termed the Marquette, Iron Range and Chicago. It already has 10 year contract for the transportation of the entire product of nearly all the great mines on this range, and is to be completed by May 1, 1890. Its ore docks at Marquette, where it has secured all the available water front, will have a storeage capacity of nearly 50,000 tons. The road will cost probably $20,000 per mile and will be 40 miles long. When completed, it will cost fully $1,500,000.

Judge Dewit has decided that the law authorizing confiscation and sale of fishermen's twine, used in waters hereabout, is unconstitutional. The state game and fish commissioner has seized and sold thousands of dollars' worth of twine under the law, and the fishermen are now preparing to bring suits to recover damages.

In the suit for damages of Harry Brown against John A. Wood & Son, the supreme court held, that a captain of a boat is a fellow servant with a deck hand, and that the plaintiff cannot recover for injuries sustained by reason of orders given by the captain, his co-employe.

Captain Lewis Stone, of Vermillion, has been appointed commander of the propeller Ohio.

It is reported that Major Farquhar has secured a promise that Captain W. W, Bates of Buffalo, will be appointed chief of the bureau of navigation. The present incumbent is Mr. Morton, of Maine, a bitter enemy of James G. Blaine. He has already tendered his resignation. With Bates at the head of the bureau of navigation, and Farquhar chairman of the committee on merchant marine, there is every prospect that lake commerce will be better looked after than ever before. Captain Bates has been manager two years of the Inland Lloyd's, which is practically an association of the vessel interests on the lakes. He is well qualified for the office of chief of that bureau from long experience in the vessel line. During the campaign and after election he proved a valuable aid to President Harrison, giving him much information concerning the shipping interests, gathered with great labor.

The stock holders in the steamer Lakeside, consisting of J. H. Smart, Captain Wigle, Adam Young, Alex. Cowan, John Ross and H. Walker & Sons, held a meeting in Windsor last week, and formed themselves into a joint stock company. We are informed that the boat will run on the Detroit route again this year with some slight changes, round trips will be made on Saturdays and Mondays, while the balance of the week will be taken up with trips from the shore to the Islands and Sandusky and return, and excursions. The officers will be the same as last year.

European manufacturers of electric lights are being visited for the purpose of finding a light to be used by the pearl fishermen at work under water.

LAKE CARRIERS' ASSOCIATION

TO CONSIDER AND TAKE ACTION UPON ALL GENERAL QUESTIONS RELATING TO THE NAVIGATION AND CARRYING BUSINESS OF THE GREAT LAKES AND THE WATERS TRIBUTARY THERETO, WITH THE INTENT TO IMPROVE THE CHARACTER OF THE SERVICE RENDERED TO THE PUBLIC TO PROTECT THE COMMON INTEREST OF LAKE CARRIERS AND PROMOTE THEIR GENERAL WELFARE.

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MARINE RECORD—OFFICAL PAPER.

AROUND THE LAKES.

[CONTINUED FROM PAGE 1.]

FRANKFORT, MICH.

Special to the Marine Record.

Steamer George Sanford has been running between Frankfort and Manistee, as the weather permitted, and went into winter quarters on Saturday, March 2nd. The harbor being entirely frozen over, also between the piers, ice extending one-eighth of a mile outside.

It is rumored that Frankfort parties have bought, or propose to, the Milwaukee tug Holton. She is to be used for harbor and log towing.

Wm. Upton has sold his share in steamer Sanfort to A. E. Banks and Captain Sutherland, making them controlling owners.

Captain Wm. Robertson, who has been master of the propeller Dewar for the past two years, goes as mate on the propeller Petosky next season.

Schooner Jennie Weaver has been partially rebuilt, receiving a new stern, cabin, etc.

Propeller J. D. Dewar is being brushed up, getting ready for navigation.

Tug Pottowatomie is at St. Joseph receiving a thorough rebuild.

The Platte river lumber company is building a large steam paddle wheel tow boat at Edgeraton to tow rafts. BURMEISTER.

BUFFALO, N. Y.

The life saving service promises to connect the city with the station early in the season, and Superintendent Dobbins is prepared to furnish the public with any report of arrivals and departures that may be desired. He asks that all who are interested in this report to do all they can to oblige or persuade captains to respond properly to the lookout's hail at night. Captains are sometimes gruff at such times, and prefer making some sarcastic rejoinder to giving the name of their vessels. The report of the arrival and departure of craft with the exact time added will be valuable, and it is hoped that vesselmen will cooperate with the life men in furnishing it.

A conference of United States engineers has been held as to the best way of expending the $225,000 given by congress last year for Buffalo harbor work. The old breakwater above the water line is to be replaced with concrete stone work. Fox & Holloway are to furnish the needed sand, W. E. Carroll the gravel, Ira Farnsworth the broken stone, John Glasser the rubble stone, and P. G. Straub is to remove the wooden portion of the breakwater. The Union Akron Cement Co., will probably supply the cement.

Captain R. C. Goldsmith will command the Winslow line steamer Cormorant this season.

It is currently reported here that the steamer Arizona and consort Plymouth have been engaged to bring ore from Escanaba to Lake Erie ports at $1.10. This contract extends through the entire sailing season. Some loads are to be delivered at Erie and Buffalo as well as Ohio ports, but this fact is not considered to the disadvantage of the vessels, as both those ports ship large amounts of coal.

Captain John Mitchell, who has been seriously ill at Marine City, is much better and will be out in a short time.

Captain F. S. Geel, of Port Huron, yesterday bought of W. W. Tyler and others, of Buffalo, the steambarge H. D. Coffinberry for $35,000. A condition of the sale is that her boiler must be allowed the same pressure as last season. The buyers formerly owned the little propeller Maine, but were out of vessel property. The Coffinberry was built at East Saginaw in 1874, measures 706 tons, rates A2, and is valued in Lloyd's at $45,000.

It is rather early to talk of canal freights, yet shippers yesterday offered 4½ cents on wheat and 4 cents on corn for boats to load at the opening of the seasan. Forwarders wanted a half cent better.

B. Whittaker's appointments: Schooner Francis Palms, Captain David Wilson; Philo Scoville, Captain H. Jeffrey; Unadilla, Captain Pat Ryan; S. V. R. Watson, Captain Hiram Estelle.

MARYSVILLE, MICH.

Special to the Marine Record.

It is looking quite spring-like here. They are building a pontoon for Mills & McMoran, and have the steambarge N. Mills, towbarges Jupiter and Leader painted ready for spring work.

The propeller Point Abino will make a start this week, and will make tri-weekly trips from Stag island in the gravel trade.

The steamer Mary commences her trips on the river this week.

The propeller J. E. Mills is getting new flue sheet, new legs, and other repairs to her boiler; she will be as good as new, and new main mast, new hatch coamings forward and aft, calked from light water mark up decks, so she will be in tip-top shape for the coming season.

PUT-IN BAY, OHIO.

Special to the Marine Record.

The steamer American Eagle commenced making regular daily trips between this place and Sandusky, March 3rd. The Marble Head lighthouse is lit each night for her especial accommodation. We desire to thank, through your columns, the keeper of this lighthouse, Mr. George Magu, for his kind attention.

F. J. MAGLE.

MILWAUKEE, WIS,

Three sailors, Rudolph Dahlman, Richard Barton and Fred Buchert, were taken from a refrigerator car in the St. Paul yards, Monday night, nearly dead from starvation. Last Friday morning they entered the car, which was loaded with empty beer kegs, at Republic, Mich. The car was sealed up after they they got in. In this condition, without food or water, they made the journey from Republic to Milwaukee, a distance of 253 miles. They were terribly bruised by the jolting of the kegs and nearly dead from thirst and starvation.

SHEBOYGAN, WIS.

Captain McLeod, of Chicago, inspector for the Inland Lloyd's Marine Insurance Record, arrived in the city to inspect the vessels at this port.

Riebolt, Wolter & Co. now own the old tug Starke, formerly owned by Starke Brothers, and after giving her thorough repairs they will put her in commission at this port to do towing.

MARINE CITY, MICH.

Special to the Marine Record.

New deck beams have been placed in the Sea Gull, and the work of converting her into a steambarge is progressing nicely.

The work of converting the schooner McVeigh into a tow barge, and the repairs upon her, have been completed.

The rebuild of the Levi Rawson is being pushed ahead rapidly and will be completed by the opening of navigation.

The barge S. A. Irish was the first to don a fresh coat of paint. She comes out a bright green this spring.

About twenty-five frames are now up for the steamer at Curtis & Brainard's yard.

The steamer now on the stocks at the Marine Transit company's yard is now partially ceiled.

A new spar is being put in the steambarge A. A. Turner, and numerous other repairs made.

The work of lengthening and rebuilding the steambarge E M. Foster, at Holland's yard, is being rushed along rapidly, and she will be ready for work by May 1st.

The rebuild being given the Jane Rawlson is nearly completed, and she will come out this spring nearly as good as new. Another spar will be placed in her, giving her two.

The new steamer at Holland's yard will be launched as soon after the ice moves as it is possible to get the ways in shape. She is all calked and the painting has commenced.

The new steamer launched at the Marine Transit company's yard last fall has not as yet been named. She is fast nearing completion, and will be ready for business at the opening of navigation.

The Maumee transit company's consort of the steamer George W. Carman, will be ready to launch about the 1st of May. The George W. Carman is a fine steam barge, and the Maumee transit company are sparing no pains to make her rate A 1. She is receiving her ground color, but it is not decided the color for her last coat. Captain Lester deserves great credit for their new boats.

The barge S. A. Irish has received a new coat of paint, and looks as if she had just popped out of a bandbox.

Captain Henry Scott is making the A. A Turner better than new. Captain Henry is also doing considerable repairs on the Montpelier.

The Gratwick's fleet will put in as fine an appearance as the rest.

The schooner Owens, has a new stockholder. Success Marty.

We are looking for the commander of the Louisanna to put in an appearance, and set some of the boys at work, scrubbing and painting.

The Kate Buttroni has received new dome house, and minor repairs. Captain Norton is sparing no expense to make his boat rate A 1.

The Mary, plying between Port Huron and Algonac, arrived here Saturday eve, having laid up at Port Huron 27 days.

The river is comparatively clear from ice, and the feeling among the people is, that it will keep so.

Captain Sam will pull the wire this season, but cannot give better satisfaction than heretofore.

Captain J. C. Miller's steam barge is rapidly going on, with the aid of foreman Mike Crowley, who is doing splendid work.

The City of Baltimore will be ready for business this week, weather permitting. Good natured Captain John Lozen pulls the bells, Frank Wooley handles the money, and is one of the boys.

Captain James Leitch will spare no pains to have the Abercorn rate as usual.

The new steamer being built by Robert Holland, is ready to launch as soon as the ways are ready to receive her. She has not an excelsior of wooden hull on the whole chain of lakes. Her machinery is placed, and her joiner work fast nearing completion, under the supervision of Mr. Brown. She will have three spars of extra proportion. Mr Alex Anderson, her builder, deserves great credit for the pain-taking in the construction of this new steamer. Mr. Anderson is the overseer of the re-building of the steamer Foster, which was wrecked at Sand Beach harbor. She has been lengthened 18 feet, with 20 new frames, and will carry 175,000 lumber. Her owners of Port Huron cannot but be satisfied with Mr. Anderson's skill. The expenses will be about $4,000.

Captain Phil Rice, owner of the Harry Cottrell, is under the weather, but nothing serious. The Harry will go in the old trade, salt and coal.

The lights at the St. Clair Flats will all be changed except around the southeast bend, which will be as before. A chart with rules for running the range will be given to all those that have contributed to the support of same. Those that are waiting for some other owners to pay their bill, may get fooled. MC NIFF,

DULUTH, MINN.

Two car loads of steel for the Americrn barge company's new vessel has arrived from the east, and are being unloaded. Fifteen or sixteen more are expected daily.

Captain Alex McDougall has left here for New York presumably on business for the American barge company, of which he is the general manager.

An amendment to the deficiency bill in the house of representativss adds $3284 for the building of range lights at Duluth These lights will be placed on the inner end of the canal to serve as ranges to guide pilots in and out of the harbor and, on account of the numerous other lights about the city, are much needed.

Napoleon Grignon has 50 men at work on contracts, He has lately rebuilt for Peyton, Kimball & Barber their scow No. 1, known to vessel men as the old ark. For the same firm he has under constuction two new lumber scows, each 100 x22 feet.

Captain Yocum's new schooner-rigged scow is being rushed and will be ready for launching about April 20. The vessel is not named yet, but will be 128 feet over all, 32 feet beam, and 9 feet depth of hold. She will carry two masts with sails and jib, and will have improved steering gear. The Rambler will tow her when necessary.

Captain Matt Carroll resumes ownership of the tug Maggie Carroll. He will give her a spring overhaul, coat of paint and other improvements.

The parties to the new coal dock seheme in Duluth are Col. Pickands and Samuel Mather, of Cleveland. The lease for the property is about completed and the company will enter the lists this season, having its own mines, boats and docks. It will handle a very large amount of coal at Duluth this year.

Captain Hibbard will take the side wheeler Free Trade back again, will give her some needed repairs and put her into active service early during the season.

The tug Merchant is hauled out for a little new work. She is on the Citizen's dock.

St. Paul & Duluth flour warehouses on the west side of their slip are having a few spring repairs, and the dock is receiving new heavy planking the entire length.

Ice in the slips is getting honeycombed and rotten and a number of vessels are perfectly free in the water.

The ferry Estelle is receiving repairs amounting to about $600, including a new upper roof. The forward cabin has been removed, the pilot house placed almost amidships on the upper deck, and the paint brush will work a transformation. Captain Bishop will sail her

The Hattie Lloyd gets about $250 of new work and repairs Her antiquated cabin windows will be replaced with modern single glass lights.

The Plowboy will be overhauled and $200 expended on her spring outfittings.

A wheel arrived for the tug Rambler yesterday. It formerly did duty in the wrecked steamer Starucca on the Transit line.

The Rambler will be practically a new craft when she takes the water next month. Captain Yocum will pull the bells and Al Baker will handle the fog. She has been entirely rebuilt from a few feet above the keel and she will be better and handsomer than ever. She will tow the new schooner and do logging work.

The Booth Packing company's boats are in good trim for the commencement of the season. The Hiram R. Dixon will undergo the usual spring outfitting, and the T. H. Camp needs but a few repairs.

The John McKay is on the boxes and will probably stay there for some time. She needs a lot of work, new sheathing, planking, etc.

Williams, Upham, & Co., are very busy. Dredge No. 1, which was badly scorched last fall has been rebuilt at a cost of $14,000 No. 6 has been abandoned. No. 4 is having extensive repairs, a new boiler and engine and other improvements. She will be the strongest fresh water dredge in the world when in readiness. The firm have a new dump scow with a capacity of 175 cubic yards. Dredges 3, 5, 7 and 8 will receive the usual spring fitout.

Captain Martin Cole will command the tug John Martin, and Zeph Perrault will be in the engine room. The J. H. Upham will be put through by Captain John Rehbine and engineer Tim O'Leary. Ed Jaques will stay in the pilot house and Fred Bushman will be chief engineer of the Eliza Williams. The F L. Danforth will go into commission with Captain James Cole in command and Peter Dube in the engine room.

Outfitting crews are commencing to arrive for some of the lake boats.

There are over 250 men at work in St. Paul & Duluth slip on vessel and dock work, and things are decidedly busy in that vicinity.

The tug Record, or any of the larger boats, could easily walk through any ice in this end of the lake, at least so says Captain Washington Harrow.—*Duluth Evening Herald.*

DETROIT BRIDGE.

To the Editor of the Marine Record.

MARYSVILLE, MICH. March 14, 1889.

Dear Sir—I saw an article in the RECORD, "That Detroit Bridge," signed, A. A. Cox. I wonder if my old friend Captain Cox, has forgotten when he was master of a smaller steam barge then the Tom Adams, with a string of scows and barges as long as the moral law. Then St. Clair river was not wide enough for his tow; the steam barge would be hugging the weather bank, and the stern barge would be so near the lee bank, it would be almost impossible for another boat to pass him, how would he get through the draw of the bridge with that tow, blowing hard abeam. He further said that the up bound boat would take the starboard draw. I would like to ask the captain if he was bound up, with a fleet of three or four big tows running abreast, as we often see them, and racing, they would all wait for the other to slack until they got right up to the bridge, and some of them would have to stop, and if it is blowing hard from the south, some of them would sag over and block up the draw for the down fleet, and there would be a queer old mess, and the electric lights blinding a man. I am master of a small steam barge, and I would dread to see a Detroit river bridge, for I know that we will have to stop a great many times more on account of fog, for we often run the river when it is pretty foggy, and we have all we can do to find our way down without a bridge being in the way. If there was a bridge in the way we would have to stop, and then we would say, as all captains will often say, if they ever get a bridge across the Detroit river, d—n the bridge. I think some rail road man is Captain Cox's great friend, and had Captain Cox publish that item, for Captain Cox knows, or any other man that has sailed as long as we have, that the bridge would be a great dread on a dark night, blowing hard with a big tow; ten chances to one we would stop until morning. The lost time to steamers and vessels that the bridge will cause, if built, in a few years would build a tunnel. I would like to hear from some captains that expect to run Detroit river with a big tow some of those nights when we have all we can do to feel our way up or down without the bridge. T. A. ELLERY.

THE LUMBER TRADE.

The commission and wholesale and retail lumber dealers, who compose the "Lumbermen's Exchange," met at the Tremont House, Chicago. About seventy-five were present, including nearly all the prominent dealers in the city. After a lunch, which is an annual event, served in the hotel ordinary, the twentieth yearly business meeting of the exchange was held. The lunch was a complimentary one, provided by Mr. Alexander C. Soper, of the Soper lumber company, the retiring president of the exchange.

President Soper opened the business meeting with a speech, in which he congratulated the members of the exchange upon their present prosperity and thanked them for the honor they had done him in the past. He also said: "In reviewing the past year of business we note a large increase in the amount of lumber handled here. The total amount was some 2,000,000,000 of feet. In the history of the trade there has been but one year, 1882, when this amount was exceeded, and then only by about five per cent.

A summary of the figures presented is as follows: pine lumber received by rail, 168,880,000; pine lumber received by lake, 1,331,121,000; pine receipts, 1,699,801,000; hardwood lumber by rail, 230,319,000; hardwood lumber by lake, 61,740,000; hardwood receipts, 312,268,000; shingles received by rail, 14,143,000; shingles received by lake, 615,542,000; shingle receipts, 629,685,000; lath, pieces received, 48,831,000; cedar posts received, 4,577,173; railroad ties received, 1,969,873; telegraph poles, 115,666; cords of wood received, 12,645.

The disposition of lumber of all kinds for the year amounted to 1,923,217,890 feet against 1,844,961,288 in 1887, being an increase of 80,256,617. Sales and shipments of pine lumber, 1,730,646,000 feet; hardwood, 231,523,000 feet, being a disposal of 72 per cent of the lumber in sight. An increase over 1887 of 4½ per cent, and over 1886, 12½ per cent. Of shingles there were disposed of 643,313,393, as against the year preceding, 665,714,750; a decrease of 3 per cent.

The local consumption of lumber for 1888 was 77,222 230; for 1887, 39,990,000.

FREIGHT OUTLOOK.

There is nothing startling to report in the freight market and no rates are yet fixed, the charter showing $1.10 from Escanaba to Lake Erie ports are for the season. As reported last week vessel men are not eager to place their property in the hands of the iron ore men during navigation, unless they can see a fairly moderate profit arising from the transaction, and while $1.10 might be taken for a few spring trips, the majority of owners consider the rate too low, and are inclined to hold out for an improvement. It is said that a large parcel of coal has been accepted by a Detroit firm, from Toledo to Duluth, but in the absence of positive figures we must omit quoting our authority. A prominent vessel broker and agent here, says that he considers the present outlook firm and favorable to vessels' and that furnace men will buy ore in the course of the next ten or twelve days, and shippers having got the vessel men down to the lowest notch, they will begin to charter, but the rates of freight heretofore given should not be considered a basis for the opening rates. A paper has been circulated throughout the city making a compact between all the vessel owners that they will hold their tonnage in port until May 1st; they believing that it will be greater profit to do so than to run through the month of April, when it is considered that no money can be made during that month and that a saving of 10 per cent insurance is made; also that an early starting of vessels is conducive to low rates. This paper, as we have said, has been signed by all the prominent vessel owners of this city and many letters have been received by the secretary from Chicago, Buffalo, Detroit, and Milwaukee, conforming to the compact. It would be well in this behalf for all interested in maritime affairs, to correspond with the secretary of the meeting of vessel owners—captain C. E. Benham, Mercantile bank building, Cleveland.

The Sault ste. Marie Pioneer makes a strong appeal to the government to make the new canal at that place 20 feet.

THE project for penny (two cent) ocean postage looks promising. Mr. John Henniker Heaton, M. P., will shortly come to the United States and appear in its behalf before a congressional commitee. He estimates that at the present five-cent rate the English post-office makes more than $250,000 annually on its American mails. Water transportation is cheaper than land. As it is not the purpose of either government to make the mails a source of profits the proposed reduction appears to be entirely reasonable.

Thomas Drein & Son, the life boat builders, at Water and Tatnall streets, have become the sole manufacturers of the patent oil distributor recently invented by John Ericsson, of Sabine Pass, La. The invention consists of a galvanized iron vessel which may be utilized on board of vessels at sea for distributing "oil on the troubled waters" during a storm. The device is automatic, and may be carried by steam vessels, sailing vessels, and boats of all kinds. A working model of the oil distributor has been placed on exhibition, and consists of a tank, modeled after a whale boat, with sharp ends. This craft, or tank, such as an ocean steamship would require, is built 7 feet long, 3 feet wide and 21 inches deep, and will hold eighteen gallons of oil.

FOR SALE.

KEEL SLOOP YACHT NORDEN, 42 feet keel, 15 feet beam, 5½ feet head room in cabin, can be arranged to accommodate twelve persons for cruising. Fast and staunch, cost $2,700 to build, will sell if purchased soon for $900. F. W. FINCHER, Pentwater, Mich.

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Dealer in Standard Oil Co's.
CAPITAL CYLINDER OILS
—AND THE—
Finest grades of machine oils.
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GRAPHITE
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FOR STEAM OR GAS PIPES
makes a perfect joint that can be opened with ease in three years or thirty years. Bolts, screws, etc., smeared with this grease will not rust even in the dampest places. Write to Jos. Dixon Crucible Co Jersey City, N. J., for circulars.

FORE AND AFT.

Port Arthur received 83,000 tons of coal last season, but will use only about 30,000 tons.

Captain J. R. Cowley, who sailed the Bulgaria last season, goes in the Roumania next season.

The Canadian Parliament is again struggling with the overloading and undermanning question.

West Superior promises to exceed last season's receipt of 750,000 tons of coal, but her grain receipts are likely to fall off. The Lehigh Valley coke ovens are to be increased to 200.

Canadian lumbermen are asking their Government to throw the export duty off logs. They fear retaliatory measures at Washington. The duty is $3 per thousand, board measure.

Simon Langell has sold his interest in the steamer Simon Langell to Woods & Peck of Cleveland, on a basis of $70,000 for the whole.

Cheboygan expects to dump 140,000,000 feet of logs into her mill yard this season.

A stage is run between Port Huron and Marine City which is mounted on runners and heated by a coal stove.

Manistee will send 100 of her best citizens on an exploring trip to the Pacific coast. A colonization scheme is behind the move.

The Escanaba & Lake Michigan Transportation Company has made the following appointments: Steamer Escanaba, Captain G. E. Merritt, Engineer P. J. Navaugh; Argonaut, Captain William Chamberlain, Engineer Mr. Tilden; Rhoda Emily, Captain J. W. Brion, Engineer W J. Burns.

The French are the canal builders of the world. Not disheartened by De Lesseps' failure at the Panama, a French company has secured concession from Russia to construct a canal connecting the Black sea with the sea of Azof. This will make an island of Crimea by cutting through the strip which connects it with the main land. This new canal will be 74 miles long.

THE KEEWATIN.

The new steamer, which is to replace the Algoma—is very far advanced. She is the first steel steamer ever built in Canada and is some 30 odd feet larger than the Athabasca and Alberta, of the C. P. R. fleet. The Polson works at Owen Sound cover about 8 acres of ground and are splendidly equipped with well-built workshops, etc., everything, in fact, necessary for iron and steel ship building. Over 300 men are employed there at present, working day and night on the new boat, at night by the aid of electric lights. The new boat is 305 feet long, 38 feet beam, 14 feet 3 inches depth of hold, with two decks, the height between which is 8 feet. A saloon cabin runs her whole length with a promenade deck on top. She will be provided with 64 staterooms, each containing 3 berths and will be lighted throughout with the Brush incandescent electric light, and will be steered by steam. From keel to her decks she is built entirely of steel, the plates on her side being from three-quarters to three-eighths of an inch thick, and thicker than those on her two sister ships built at Glasgow. She is also divided into eight water-tight compartments. At present a very large gang of men is at work upon her, and the plates are being rapidly rivetted to her sides in the hope of being able to launch her before the sound freezes over. Even as she stands at present on the stocks the boat makes great appearance, and is a credit both to the Polson Iron Works Co. and to the Dominion of Canada. The benefit which the building of such a boat gives to Owen Sound directly and to the whole of Canada indirectly can be imagined when the fact that her contract price, $250,000, is remembered.

CALIFORNIA'S SHIPPING INDUSTRY.

The aggregated product of the ship yards in San Francisco and vicinity, not counting unfinished work, was for 1888, nearly 18,000 gross tons. The unfinished work, represented mainly by the war vessels building at the Union Iron works, will add at least 4,000 more, making an aggregate of 22,000 tons, and if this amount is credited up to a population of one and a half millions on this coast, it is no mean showing in that line of industry. Supposing the population of the coast to be two millions, a "pro rata" product for the country would be 555,000 gross tons, or 180 vessels, of 3,000 tons each. We have recently examined some of the ship yards in the east, and are prepared to reiterate the claim made in our last issue, that both the facilities, and practice here, for iron shipbuilding are superior, and the future will no doubt show that this is to be a vast, if not the leading, industrial interest of San Francisco and vicinity; especially if our coast and foreign trade is expanded in proportion to the increase of five years past.—*Industry.*

FROM up the south shore comes the news of a narrow escape from drowning of a party of light-house people. From the meagre particulars at hand it appears that Mr. and Mrs. Samuel Bernier and child and Captain Crisp, were going between stations in a smaller boat, which they had launched in the open water outside of the icebergs. In some manner the boat capsized. Fortunately they had some kind of a grapple, which was fastened on the ice by Captain Crisp and all were saved. It was, indeed, a narrow escape.

MONTAGUE IRON WORKS,

MONTAGUE, NICH.,

WILSON & HENDRIE, Props.,

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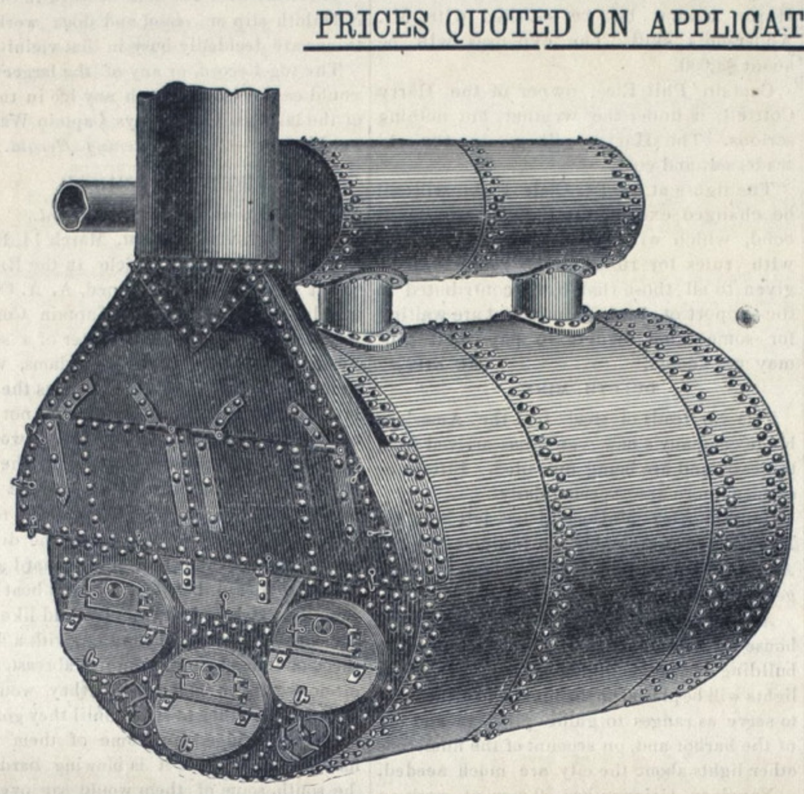

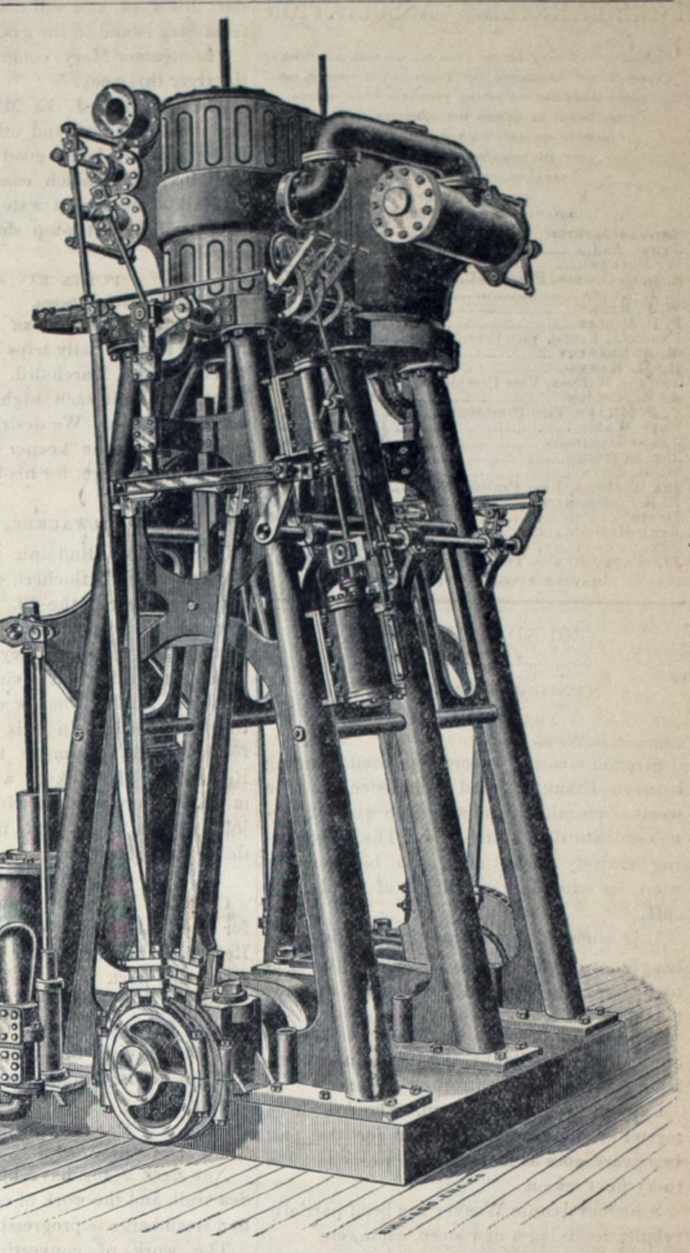

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New Central Depot South Water st. and Viaduct.

Change of time goes into effect Dec. 23, 1888.

Central or ninetieth meridian time, 33 minutes slower than Cleveland city time.

Until further notice trains will leave from the new Central Depot, South Water street and Viaduct, as follows:

DEPART.

No. 62, Mahoning Valley Accom	† 6 00 a m
No. 72, New York Express	* 8 30 a m
No. 72, Fast Pittsburg Expre	* 8 30 a m
No. 64, Pittsburg Express	* 3 00 p m
No. 66, Leavittsburg Accom	* 4 20 p m
No. 68, New York Express	†10 50 p m
No. 68, Pittsburg Express	†10 50 p m
No. 70, Pittsburg Local Express	†11 45 a m
No. 74 Youngstown	† 4 20 p m

ARRIVE.

No. 65, Fast New York Express	*12 50 p m
No. 61, Pittsburg Express	† 7 35 p m
No. 67, Pittsburg Express	*10 56 a m
No. 65, Pittsburg Express	†12 50 p m
No. 63, New York Express	* 6 50 p m
No. 63, Pittsburg Express	* 6 50 p m
No. 69, Pittsburg Local Express	† 8 10 p m
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*Daily. †Daily except Sunday.

☞This is the only route by which passengers can reach Cory, Elmira, Binghampton, New York City, and intermediate points without change. No change to Boston and New England cities.

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STEAM BARGE PASSAIC, and four consorts. Capacity, 3,300 tons coal or 2,400,000 feet timber. Boat now laid up at Buffalo. For terms and price, inquire of J. M. JONES, 52 Griswold St., or C. C. BLODGETT, 242 Woodbridge St., Detroit, Michigan.

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BOILER AND ENGINE. Engine 12½ by 12, boiler 4½ by 11, allowed 90 pounds steam; shaft wheel, pumps, all in running order. Price, $700. Apply to CAPTAIN H. N. JEX, Port Huron, Mich.

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HARBOR TUG for sale. Engine 18x20, boiler 5 feet 6 inches by 11 feet, and allowed 100 pounds of steam, and is A2, valued at $5,500 by Lloyd's register, but the owner will take $4,600 cash. For further particulars inquire at 113 Franklin avenue, Cleveland, O. CAPT. E. DAHLKE.

WANTED.

TUG.—A good towing tug, about 18x20 engine. Inquire of CAPT. E. S. SMITH, No. 30 Twelfth avenue, East Duluth, Minn.

HARBOR TUG FOR SALE.

THE TUG MYRTLE, of Sandusky, Ohio, for sale cheap. Is in first-class condition. For particulars write to FRED GROCH, Sandusky, O.

WANTED—TO BUY TWO TOW BARGES of about, 500,000 capacity, or two A 2 schooners. Address, CAPTAIN A. FLAGSTAD, Montague, Mich.

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A GOOD MARINE ENGINE, 20x22, with or without boiler, etc, Address box 1, branch office Maine Record, 252 South Water st, Chicago, Ill.

WANTED.

SCHOONERS—20 to 40 tons, in good repair. Send full description and photo or drawing. Address, B. C. LINDLEY, Box 479. Traverse City, Mich.

UNITED STATES ENGINEER OFFICE, Cleveland, O., Feb. 12, 1889.—Sealed separate proposals in duplicate, will be received at this office until 12 m., on Friday, March 15, 1889, and then opened, for dredging at the following harbors: At Monroe harbor, Mich.; at Toledo harbor, O.; at Port Clinton harbor, O.; at Sandusky harbor, O.; at Huron harbor, O.; at Black River harbor, O.; at Cleveland harbor, O.; at Fairport harbor, O.; at Ashtabula harbor, O. All information can be obtained at this office. The United States reserves the right to reject any or all proposals. Preferences will be given to materials and plant of domestic production or manufacture, conditions of quality and price (import duties included) being equal. The attention of bidders is invited to acts of Congress approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, statutes at large. L. COOPER OVERMAN, Major of Engineers. feb 21-4

FOR SALE.

A STEAMBARGE OF 167 gross tons burden, built in the year 1886, and worked all the season since she was built, and has been kept in good order. She is now laying at the dock at or near Green Bay, Wis., and capable to do a good business. Will be sold cheap on account of the owner's time being fully occupied with other business. Enquire of. A. W. PRIEST, Kankauna, Ontagamicie Co., Wis.

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THE FINE SAILING YACHT EMMA G., HER dimensions are, 35 feet overall, 29 feet waterline, and 13 feet beam. She is a smart sailer and well known in yachting circles. For particulars enquire of J. N. WAGNER, 489 St. Clair street, Cleveland, O.

FOR SALE.

THE SCHOONER-RIGGED SCOW KATE GRANT, carrying capacity 31 tons, dimensions, length 60 feet, beam 17 feet 9 inches, depth of hold 4 feet. This vessel is only one year old and cost $2,800 to build. She will be sold cheap for cash. For further particulars apply to CHARLES L. WINNE, Port Clinton, O.

FOR SALE.

BARGE B. M. BAKER for sale cheap for cash, or will exchange for real estate. This is a bargain. J. W. WESTCOTT, Detroit, Mich.

FOR SALE.

WANT AN OFFER for a marine boiler, in good condition, ready to use; dimensions, 9½ feet diameter and 18 feet long. CAPT. V. E. MEYERS, Manitowoc, Wis.

FOR SALE OR EXCHANGE.

FOR STEAMBARGE, A NEW PASSENGER steamer, will carry 75 tons freight, allowed 115 passengers. Will sell on easy terms or exchange for steam barge. Address, BOX 90, Petosky, Michigan.

FOR SALE.

MARINE ENGINE nearly new, includes bilge pump, hand pump and force pump, cylinder 17 by 20. Will sell cheap. Address, K. BOX, Record Office.

FOR SALE

TWO MARINE BOILERS 7 years old in good order for sale cheap, 9¼ feet shell by 16 feet long for $1,000 each, ½ down balance one year, by C. H. LANE, BUFFALO, N. Y.

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PASSENGER PROPELLER GOLDEN EAGLE, Thoroughly over hauled this spring, "Sutton" Engine 14×14, 100 pounds steam, runs 14 miles an hour easily, and carrys 800 people. Owner has no reute for her and will sell for what she is worth. JAMES E. ENGLISH East Saginaw, Mich.

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TUG DREADNAUGHT is offered by the undersigned for sale cheap. She is in good condition, has double engines, and it is well known that the machinery is as good as can be made. The boilers are allowed 100 pounds of steam. Inquire of CAPTAIN THOMAS DOWLING, 248 Clinton st., Cleveland, O.

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A HANDY THREE-MASTED SCHOONER, well found and equipped, will carry 500 tons of coal, or 270 M feet of lumber. Rates, A 2½.

Also, a two-masted schooner; capacity, 425 tons of coal, or 250 M feet of lumber. Rates, A 2½.

Both these vessels have been well kept up and are most desirable investment. Apply to PARKER & MILLEN, Detroit, Mich., or to THE MARINE RECORD, Cleveland, O.

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SCHOONER FRANC MINER. Her dimensions are as follows: 68 feet keel, 17 feet beam, 5 feet hold, she has two masts and is three years old, in good shape, outfit and all. I also have a complete outfit for a tug or barge, engine 18 by 20, boiler 6½ by 14, shaft wheel and all complete For particulars write to L. NAU, Green Bay, or CAPTAIN J. A. CUSICK, Fort Howard, Wis.

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BARGE COL. BRACKET—She carries 260M feet of lumber, 220 tons of coal. Had $900 worth of repairs last season. Fit out good. Price $1,600. Mention this paper. ED. J. KENDALL, Port Huron.

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Two Tugs and Three Marine Boilers.

Tug Uncle Sam.

Length 60 feet, beam 14 feet, depth 7 feet, draft 8 feet, engine 17 by 17; steel boiler 12 feet long, 5 feet 4 inches diameter, of ⅜ths plate, allowed 100 pounds of steam. Hull rebuilt in 1887. Price $5000.

Tug J. C. Ingram,

Length 54 feet, beam 15 feet 6 inches, depth 7 feet, engine 17 by 18, boiler 10 feet long, 5½ feet diameter of ⅜ths plate, allowed 90 pounds of steam. Rebuilt in 1885. Price $3000.

A Martne Steel Boiler,

17 feet long, 7 feet diameter, allowed 110 pounds of steam, 6 years old, in good condition; price $800.

A Marine Iron Boiler,

14 feet long, 7½ feet diameter, allowed 80 pounds of steam, in good repair; price $400.

Marine Iron Boiler,

14 feet long, 5½ feet diameter, allowed 90 pounds steam, in good condition; price $300.

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1 marine engine 20x22.
1 marine engine 14x16.
1 marine engine 14x14.

Apply as above. January, 1889.

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CONDENSING PROCESS.

When steam expands in the cylinder of a steam engine, its pressure gradually reduces, and ultimately becomes so small that it cannot profitably be used for driving the piston. At this stage a time has arrived when the attenuated vapor should be disposed of by some method, so as not to exert any back-pressure or resistance to the return of the piston. If there were no atmospheric pressure, exhausting into the open air would effect the desired object. But, as there is in reality a pressure of about 14.7 pounds per square inch, due to the weight of the superincumbent atmosphere, it follows that steam in a non-condensing engine cannot economically be expanded below this pressure, and must eventually be exhausted against the atmosphere, which exerts a back-pressnre to that extent.

It is evident that if this back-pressure be removed, the engine will not only be aided, by the exhausting side of the piston being relieved of a resistance of 14.7 pounds per square inch, but moreover, as the exhaust or release of the steam form the engine cylinder will be against no pressure, the steam can be expanded in the cylinder quite, or nearly, to absolute zero pressure, and thus its full expansive power can be obtained.

Contact, in a closed vessel, with a spray of cold water or with one side of a series of tubes, on the other side of which cold water is circulating, deprives the steam of nearly all its latent heat, and condenses it. In either case the act of condensation is almost instantaneous. A change of state occurs, and the vapor steam is reduced to liquid water. As this water of condensation only occupies about one sixteenhundredth of the space filled by the steam from which it was formen, it follows that the remainder of the space is void or vacant, and no pressure exists. Now, the expanded steam from the engine is conducted into this empty or vacuous space, and, as it meets with no resistance, the very limit of its usefulnesss is reached.

The vessel in which this condensation of steam takes place is the condensing chamber; the cold water that produces the condensation is the injection water; and the heated water, on leaving the condenser, is the discharge water.

To make the action of the condensing apparatus continuous, the flow of the injection water, and the removal of the discharge water, including the water from the liquifaction of the steam, must likewise be continuous.

The vacuum in the condenser is not quite perfect, because the cold injection water is heated by the steam, and emits a vapor of a tension due to the temperature. When the temperature is 110° Fahrenheit, the tension or pressure of the vapor will be represented by about 4 inches of mercury; that is, when the mercury in the ordinary barometer stands at 30 inches, a barometer with the space above the mercury communicating with the condenser, will stand at about 26 inches. The imperfection of vacuum is not wholly traceable to the vapor in the condenser, but also to the presence of air, a small quantity of which enters with the injection water and with the steam; the larger part, however, comes through air leaks in faulty connections and badly packed stuffing-boxes, The air would gradually accumulate until it destroyed the vacuum, if provisions were not made to constantly withdraw it, together with the heated water, by means of a pump.

The amount of water required to thoroughly condense the steam from an engine, is dependent upon two conditions: the total heat and volume of the steam, and the temperature of the injection water. The former represents the work to be done, and the latter the value of the water by whose cooling agency the work of condensation of the steam is to be accomplished. Generally stated, with 26 inches vacuum, and injection water at ordinary temperature, not exceeding 70° Fahrenhet, from 20 to 30 times the quantity of water evaporated in the boilers will be required for the complete liquifaction of the exhaust steam. The efficiency of injection water decreases very rapidly as its temperature increases, and at 80° and 90° Fahrenheit, very much larger quantities are to be employed. Under the conditions of common temperature of water, and a vacuum of 26 inches of mercury, the injection water necessary, per horse-power developed by the engine, will be from 1½ gallons per minute when the steam admission is for ¼ of the stroke, up to 2 gallons per minute when the steam is carried ½ of the stroke of the engine.

HENRY R. WORTHINGTON,

ASHLAND HARBOR WORK.

Major of Engineers Quinn has prepared in the Duluth office of United States engineers the plans for the further improvement of Ashland, Wis., harbor and will advertise for bills. The plan of work, for which $80,000 is understood to be available, includes, among other things, the construction of 3861 linear feet of breakwater, east of the present ore docks, and in water of an average depth of twenty-two feet. It is to be completed by November, 1891. It is to be of slabs and rock with pile foundation, the piles driven in two rows nineteen feet apart, and are to extend to six and one-half feet above water line. The piles are all to be joined and braced and sheeted with plank and the space between to be filled with slabs and edgings and ballasted with rock. Contracts for this work will be let on April 5. It is probable that contracts for the work at Marquette barbor will also be let in a short time.

THE President has commissioned the following delegates to the International Marine Conference to be held here next autumn: Rear-Admiral Samuel B. Franklin, Commanders William T. Sampson and Sumner I. Kimball; the Superintendent of the Life-saving Service, James W. Norcross, of Massachusetts; John W. Shachford, Pennsylvania; William W. Goodrich, New York, and Clement A. Griscom, Pennsylvania.

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These wheels are noted for their extra speed and towing power or aproportionate saving of coal.
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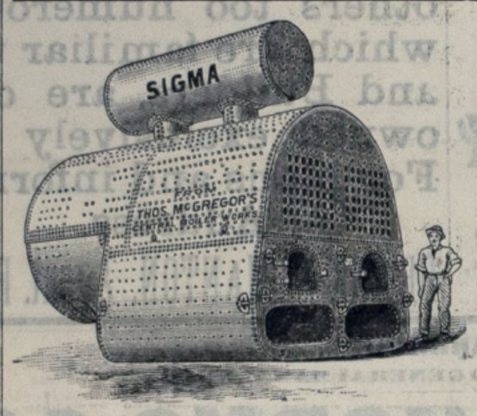

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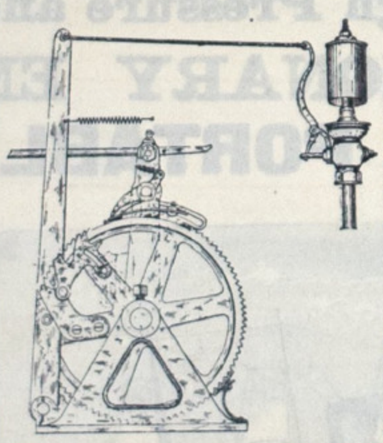
Chase Fog Whistle Machine

This machine has been placed on the following steamboats during the past year: SPOKANE, WALLULA, KASOTA, CHARLEMAGNE TOWER, JR, YAKIMA, MISSOULA, SITKA, FAYETTE BROWN, R. J. HACKETT, FOREST CITY, SPARTA, HAVANA, VIENNA, OSCAR TOWNSEND, CITY OF CLEVELAND' HENRY CHISHOLM, SUPERIOR, E. B. HALE, M. B. GROVER, J. S FAY, R. P. RANNEY, SMITH MOORE, CHARLES J SHEFFIELD, IRA H. OWEN, CAMBRIA, CORSICA, J. H. OUTHWAITE, SAMUEL MATHER, R. R. RHODES, COLUMBIA, AURORA, OHIO, WM. EDWARDS, S. E. SHELDON, AUSTRALASIA, RALEIGH, BULGARIA, ROUMANIA, J. F. EDDY, HIAWATHA, THOS. ADAMS, A. P. WRIGHT, GLADSTONE, E. P. WILBUR, SOO CITY, E. M. PECK, ROBERT L. FREYER AND NORTHERN LIGHT,

To the President and Board of Supervising Inspectors of Steam Vessels:

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H. S. LUBBOCK,
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The manufacturers are the Chase Fog Whistle Machine Co., corner of Elm and Spruce streets, Cleveland, O.

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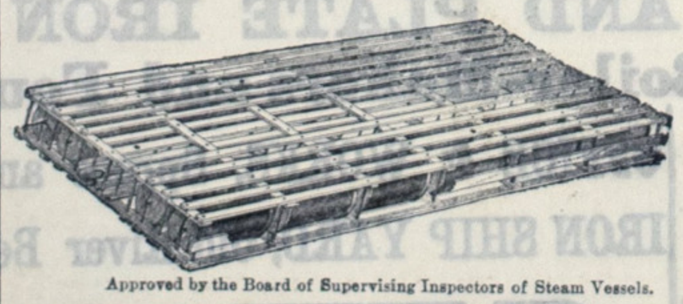
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Capacity, Persons.	Size.	Each.
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5	3.5 x 6	35
6	4 x 6	40
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10	5 x 8	60
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20	6 3 x 13 2	90
30	7 x 15	125
40	8 x 20	160

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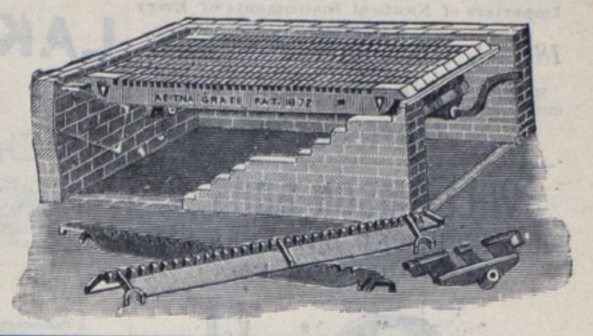

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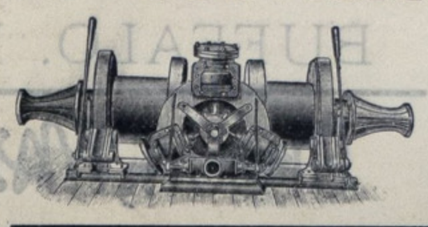
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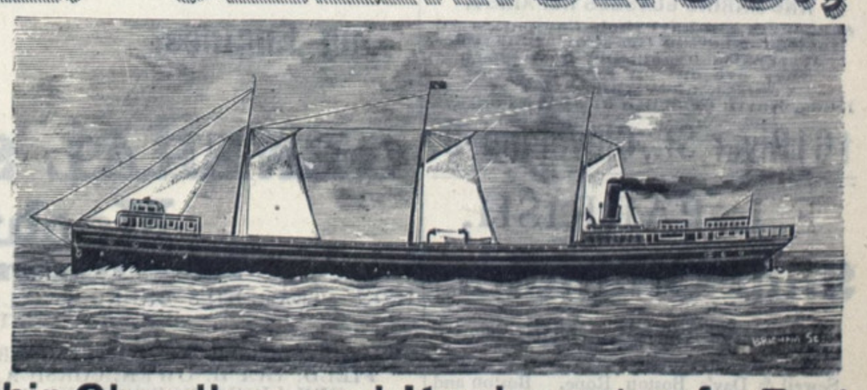
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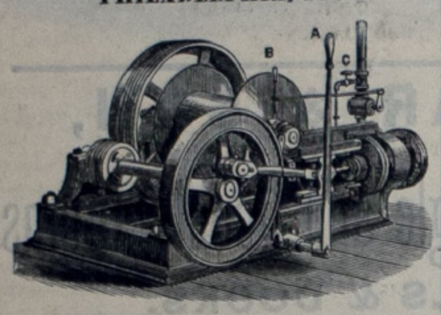

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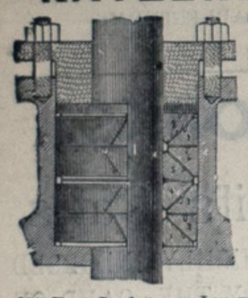

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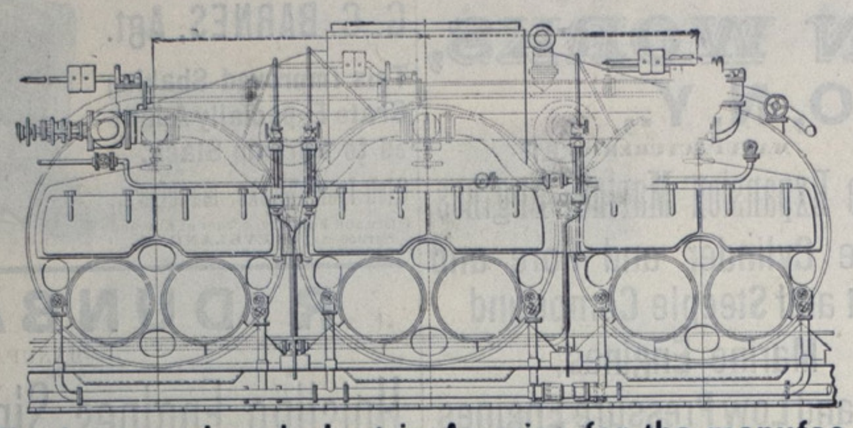

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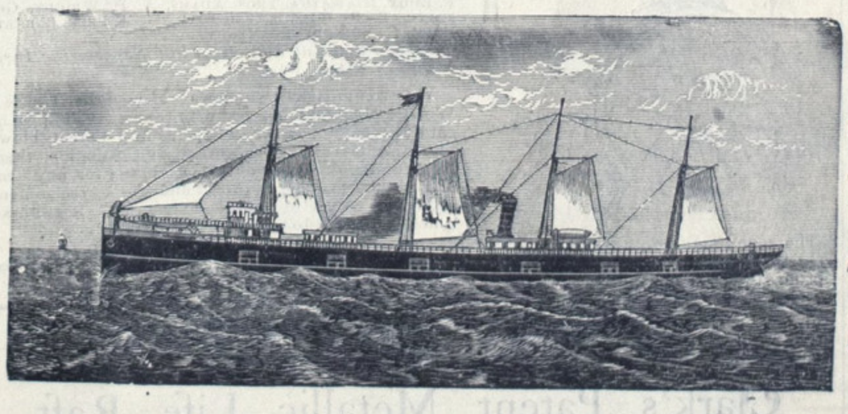

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